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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,836	09/29/2003	Michael Scharland	07072-948001	2532
26161	7590	11/09/2005	EXAMINER	
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			KO, DANIEL BOKMIN	
			ART UNIT	PAPER NUMBER
			2189	

DATE MAILED: 11/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/673,836	Applicant(s) SCHARLAND ET AL.	
	Examiner Daniel B. Ko	Art Unit 2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is responsive to the application filed on 9/29/2003. Claims 1-18 have been submitted for examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. *Claim 1, 8, and 14 are rejected under 35 U.S.C. 102(a) as being anticipated by Applicants' admitted prior art.*

Regarding claims 1, 8, and 14, Applicants' admitted prior art teaches a method for storing data, the method comprising:

writing the data to a temporary storage location (Fig. 2, step 104; page 8, 1st paragraph);

buffering a mirror request to copy the data from the temporary storage location to a mirror (page 8, 2nd paragraph, Applicants' admitted prior art discloses a mirror queue);

determining the validity of the data written to the temporary storage location (Fig. 2, step 110, page 8, 2nd paragraph); and

if the data written to the temporary storage location is valid, sending the mirror request for execution (Fig. 2, step 114, page 8, 3rd paragraph); and

if the data written to the temporary storage location is invalid, deleting the mirror request (Fig. 2, step 128, page 8, 4th paragraph).

Fig. 2 is clearly labeled as a prior art and Applicants' specification stated that Fig. 2 shows the basic logic carried out by a known host-adaptor in response to a write request by a host (page 7, 3rd paragraph).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. *Claims 2-7, 9-13 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted prior art and Jiang et al. (US Patent Application 2003/0212860 A1), hereinafter simply Jiang.*

Regarding claims 7 and 9, Applicant's admitted prior teaches a method for storing data, the method comprising:

writing a first portion of the data to a first temporary storage location (Fig. 2, step 104; page 8, 1st paragraph);

buffering a first mirror request to copy the first portion from the first temporary storage location to a mirror (page 8, 2nd paragraph, Applicants' admitted prior art discloses a mirror queue);

determining the validity of the data (Fig. 2, step 110, page 8, 2nd paragraph);
if the data is valid, sending the first and second mirror requests for execution (Fig. 2, step 114, page 8, 3rd paragraph);

if the data invalid, deleting the first and second mirror requests (Fig. 2, step 128, page 8, 4th paragraph).

Applicants' admitted prior art fails to teach the separate writings, bufferings, and deletings for a first portion of data and a second portion of data.

Jiang teaches writing a second portion of the data to a second temporary storage location (page 1, paragraph 11 and 12; Jiang discloses a portion of data to be written into storage resource and write request for another portion of data written by another data controller);

buffering a second mirror request to copy the second portion from the second temporary storage location to the mirror (page 3, paragraph 43 and 44; Jiang discloses a WR processing queue for writing request command).

At the time of invention it would have been obvious to a person of ordinary skill in the art to combine the Applicants' admitted prior art with Jiang. The motivation for doing so would have been an efficient process of data input/output (page 1, paragraph 8). As states in the Applicants' specification, when the new data is extended over more than one slot (See Applicants' specification, page 9, 2nd paragraph), dividing the data into separate portions and handle separately solves the problem (See Jiang, page 5, paragraph 69; page 1, paragraph 11 and 12). Therefore, it would have been obvious to implement the Applicants' admitted prior art with Jiang to handle the new data that is extended over more than one slot.

Regarding claims 2 and 15, Jiang teaches a method, wherein writing data to a temporary storage location comprises writing first and second portions of the data to respective first and second slots within the temporary storage location (page 1, paragraph 11 and 12).

Regarding claims 3 and 16, Jiang teaches a method, further comprising buffering a mirror request for each of the first and second portions (page 3, paragraph 43, WR processing queue).

Regarding claims 4 and 17, Applicants' admitted prior art teaches a method, further comprising sending all the buffered mirror requests for execution if the data is

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determined to be valid (page 8, 2nd paragraph, Jiang's WR processing queue's all the WR processes can be executed after the data is determined to be valid).

Regarding claims 5 and 18, Applicants' admitted prior art teaches a method, further comprising deleting all the buffered mirror requests if the data is determined to be invalid (page 8 paragraph 4th paragraph, Jiang's WR processing queue's all the WR processes can be deleted after the data is determined to be invalid).

Regarding claims 6 and 19, Jiang teaches a method, wherein buffering the mirror request comprises buffering the mirror request in a memory location separate from the temporary storage location (Fig 1, elements 20 and 24, page 3, paragraph 43; element 24 shows a temporary storage location and a WR processing queue is stored in the control memory that is element 20).

Regarding claim 10, Applicants' admitted prior art combined with Jiang teaches a data storage system for storing data provided by a host, the system comprising:

- a host adaptor for communicating with the host (Applicants' admitted prior art, page 7, 3rd paragraph);

- a cache memory in communication with the host adaptor for temporary storage of data (Applicants' admitted prior art, page 7, 4th paragraph);

- a mirror queue for queuing mirror requests for copying selected data from the cache memory to a mirror (Applicants' admitted prior art, page 8, 2nd paragraph);

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a holding pen for accumulating mirror requests prior to sending the mirror requests to the mirror queue (Jiang, page 3, paragraph 43, WR processing queue).

Regarding claim 11, Jiang teaches a system, wherein the host adaptor comprises a local memory and the holding pen is maintained in the local memory (page 3, paragraph 43, WR processing queue stored in the control memory).

Regarding claim 12, a system, wherein the holding pen is maintained in the cache memory is obvious implementation because a queue for accumulating mirror request can be maintained in any memory type with sufficient storage space.


Regarding claim 13, Applicants' admitted prior art teaches a system, further comprising a remote adaptor configured to inspect the mirror queue and to copy selected data from the cache memory to a mirror in response to mirror requests queued therein (page 8, 2nd and 3rd paragraph).

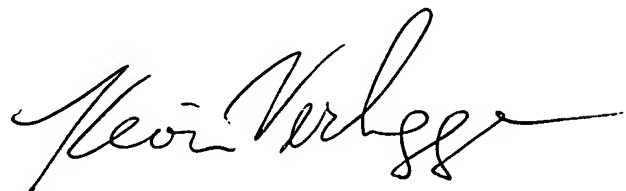
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel B. Ko whose telephone number is 571-272-8194.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Manorama Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Daniel B. Ko
AU 2189



KEVIN VERBRUGGE
PRIMARY EXAMINER